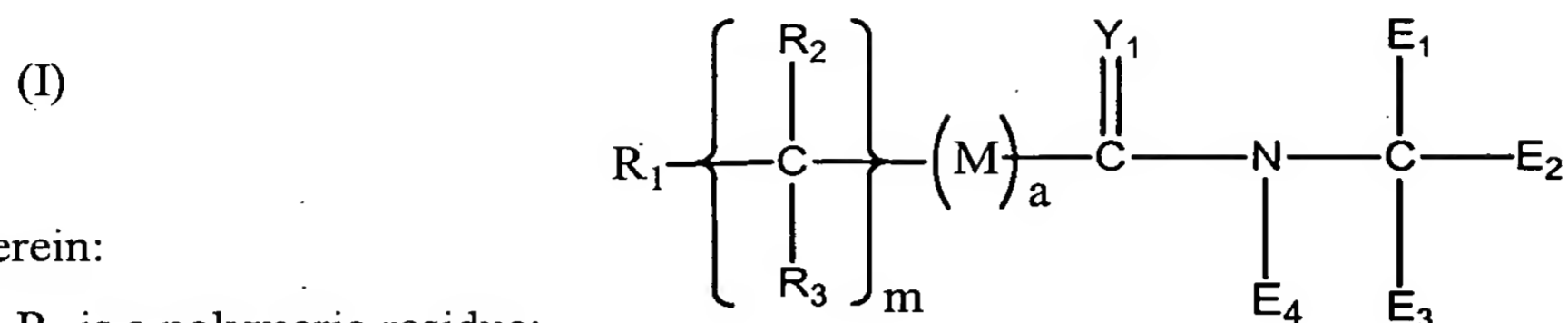


THE UNIVERSITY OF CHICAGO

1. A compound comprising the formula:



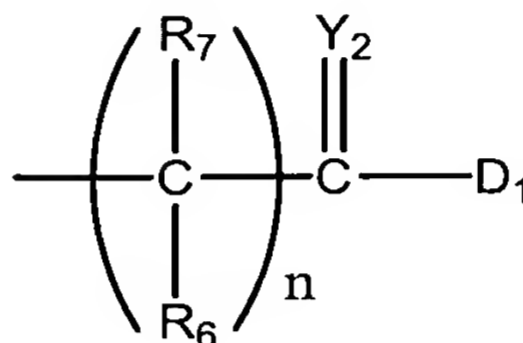
wherein:

R_1 is a polymeric residue;

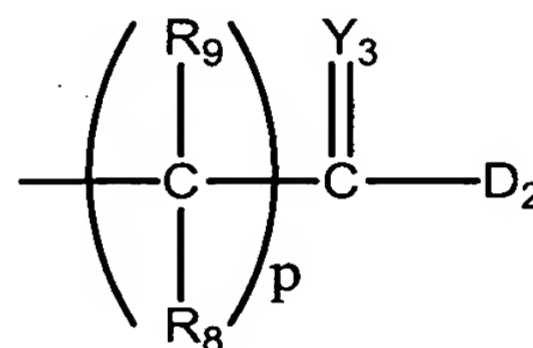
Y_1 is O, S or NR_4 ;

M is O, S or NR₅;

E_1 is



E_{2-4} are independently H, E_1 or



(a) is zero or one;

(m) is zero or a positive integer;

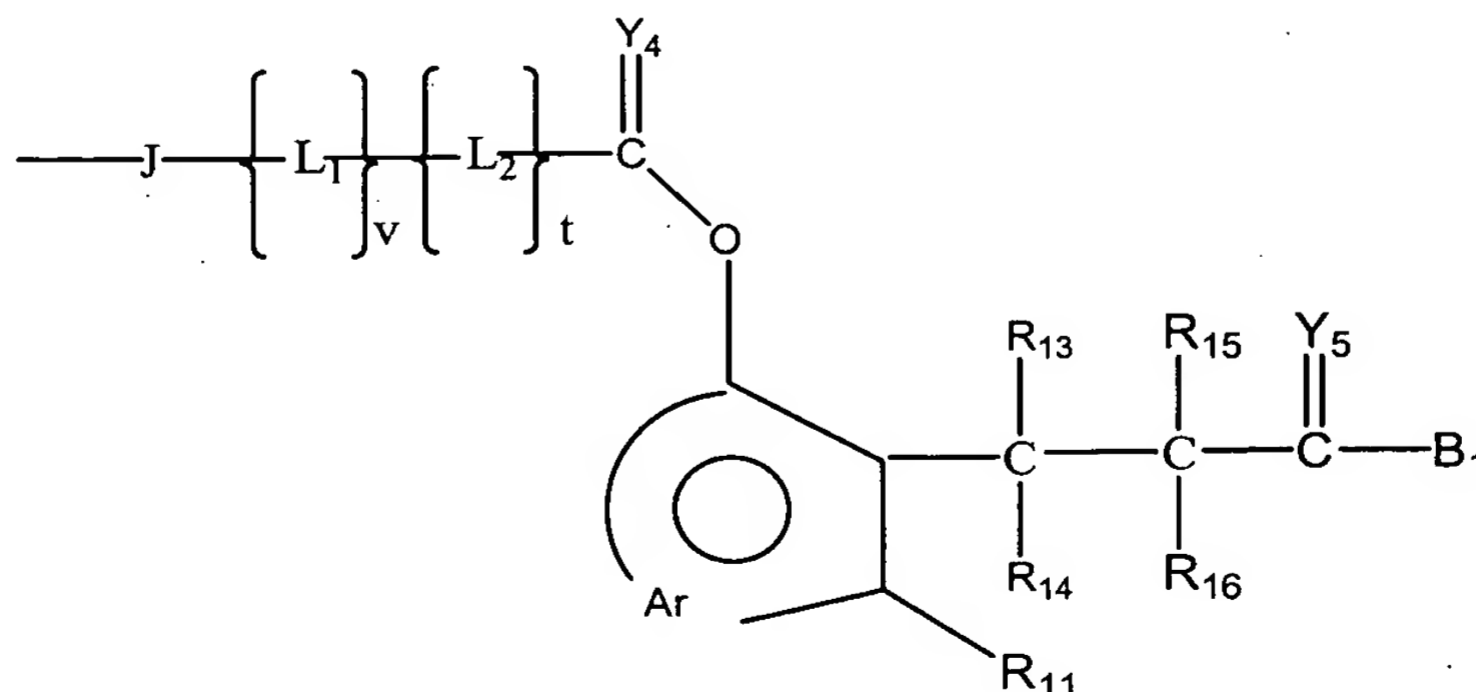
(n) and (p) are independently 0 or a positive integer;

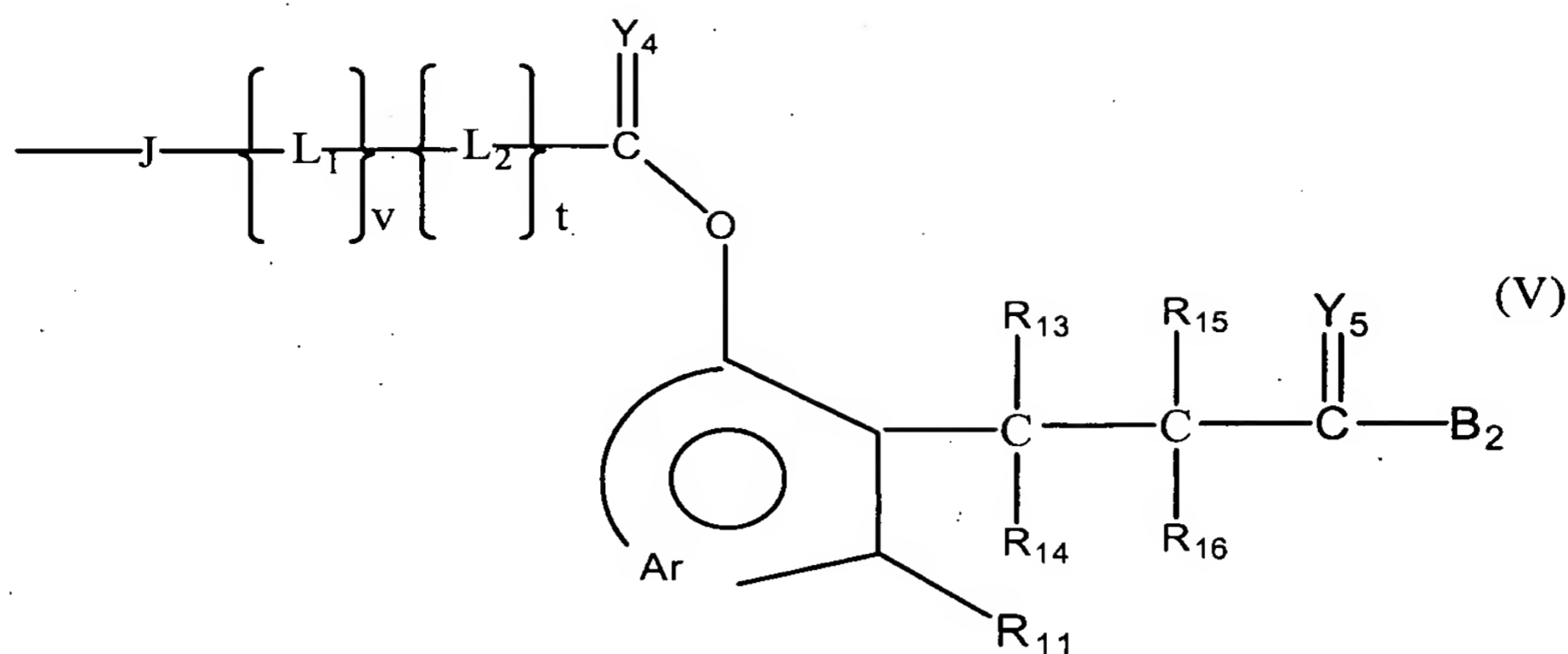
Y₂₋₃ are independently O, S or NR₁₀;

R_{2-10} are independently selected from the group consisting of hydrogen,

C₁₋₆ alkyls, C₃₋₁₂ branched alkyls, C₃₋₈ cycloalkyls, C₁₋₆ substituted alkyls, C₃₋₈ substituted cycloalkyls, aryls, substituted aryls, aralkyls, C₁₋₆ heteroalkyls, substituted C₁₋₆ heteroalkyls, C₁₋₆ alkoxy, phenoxy and C₁₋₆ heteroalkoxy;

D_1 and D_2 are independently OH,

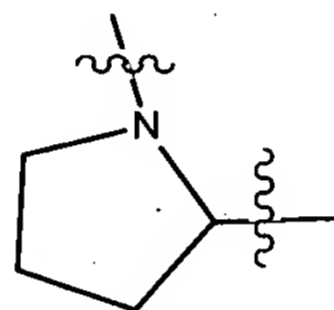




or a terminal branching group;

wherein (v) and (t) are independently 0 or a positive integer up to about 6;

J is NR_{12} or



L_1 and L_2 are independently selected bifunctional linkers;

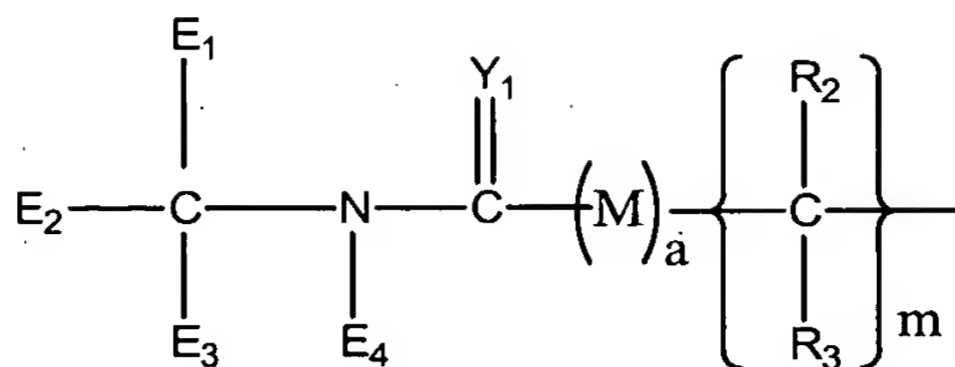
Y_{4-7} are independently selected from the group consisting of O, S and NR_{14} ;

R_{11-14} are independently selected from the group consisting of hydrogen, C_{1-6} alkyls, C_{3-12} branched alkyls, C_{3-8} cycloalkyls, C_{1-6} substituted alkyls, C_{3-8} substituted cycloalkyls, aryls, substituted aryls, aralkyls, C_{1-6} heteroalkyls, substituted C_{1-6} heteroalkyls, C_{1-6} alkoxy, phenoxy and C_{1-6} heteroalkoxy;

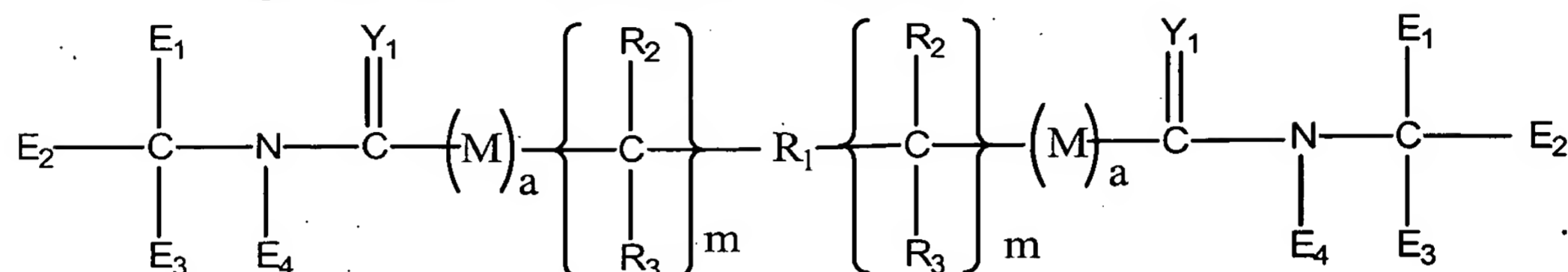
Ar is a moiety which when included in Formula (I) forms a multi-substituted aromatic hydrocarbon or a multi-substituted heterocyclic group;

B_1 and B_2 are independently selected from the group consisting of leaving groups, OH, residues of hydroxyl-containing moieties or amine-containing moieties.

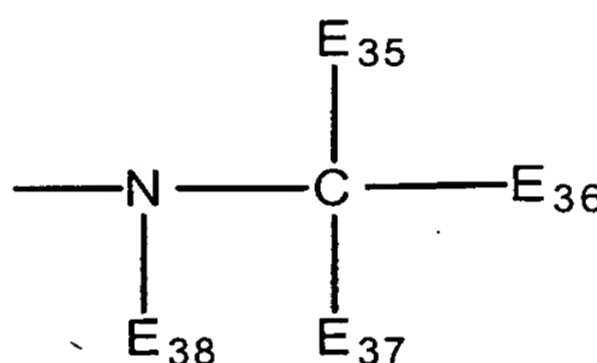
2. The compound of claim 1, wherein R_1 further comprises a capping group A, selected from the group consisting of hydrogen, NH_2 , OH, CO_2H , C_{1-6} moieties and



3. A compound of claim 2, comprising the formula:

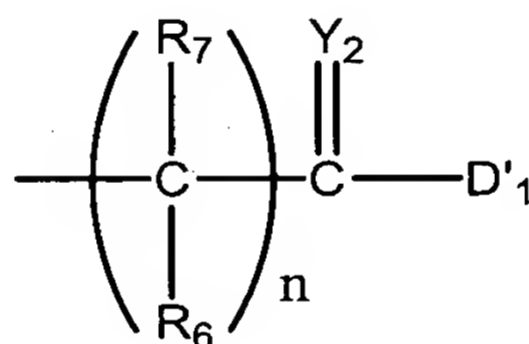


4. The compound of claim 1, wherein said terminal branching group comprises the formula:

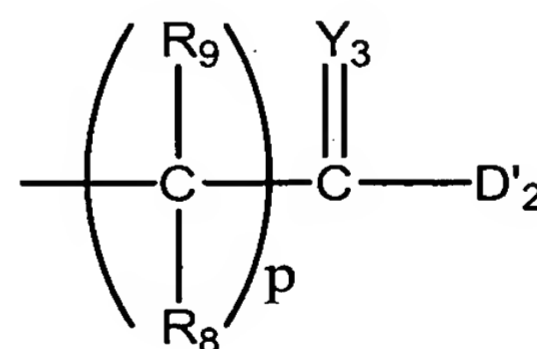


wherein

E_{35} is



E_{36-38} are independently H, E_{35} or



(n) and (p) are independently 0 or a positive integer;

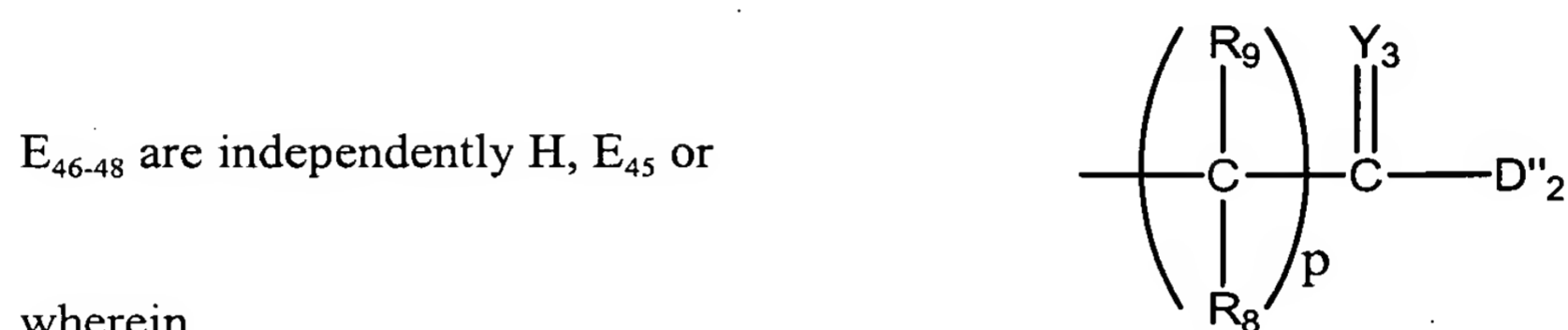
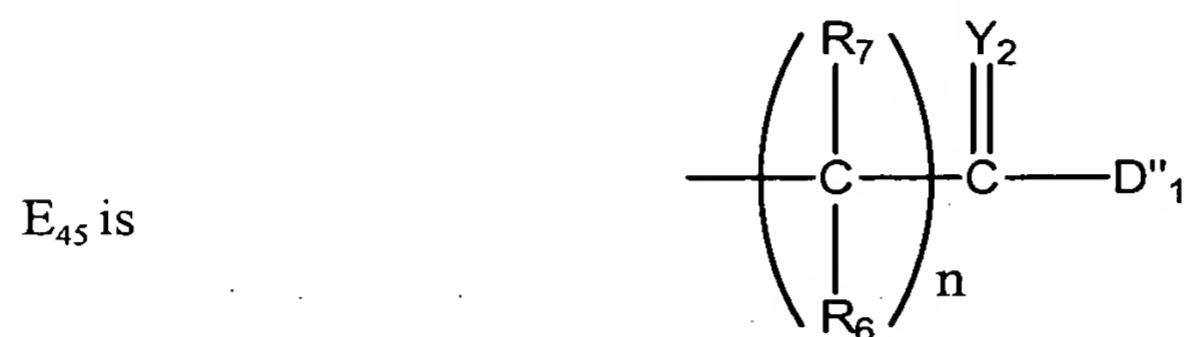
$Y_{2,3}$ are independently O, S or NR_{10} ;

R_{6-10} are independently selected from the group consisting of hydrogen, C_{1-6} alkyls, C_{3-12} branched alkyls, C_{3-8} cycloalkyls, C_{1-6} substituted alkyls, C_{3-8} substituted cycloalkyls, aryls, substituted aryls, aralkyls, C_{1-6} heteroalkyls, substituted C_{1-6} hetero-

[illegible][illegible][illegible][illegible][illegible][illegible]

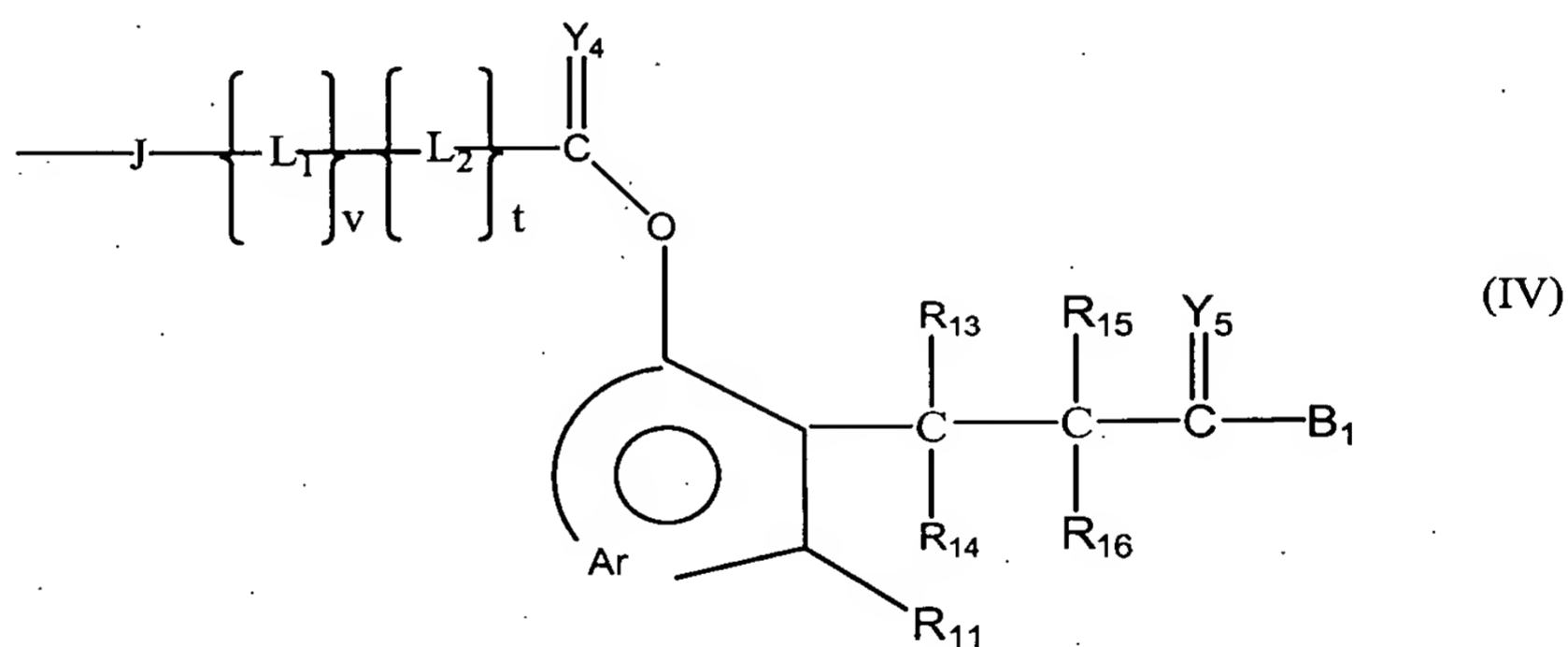
Ar is a moiety which when included in Formula (I) forms a multi-substituted aromatic hydrocarbon or a multi-substituted heterocyclic group;

B₁ and B₂ are independently selected from the group consisting of leaving groups, OH, residues of hydroxyl-containing moieties or amine-containing moieties;

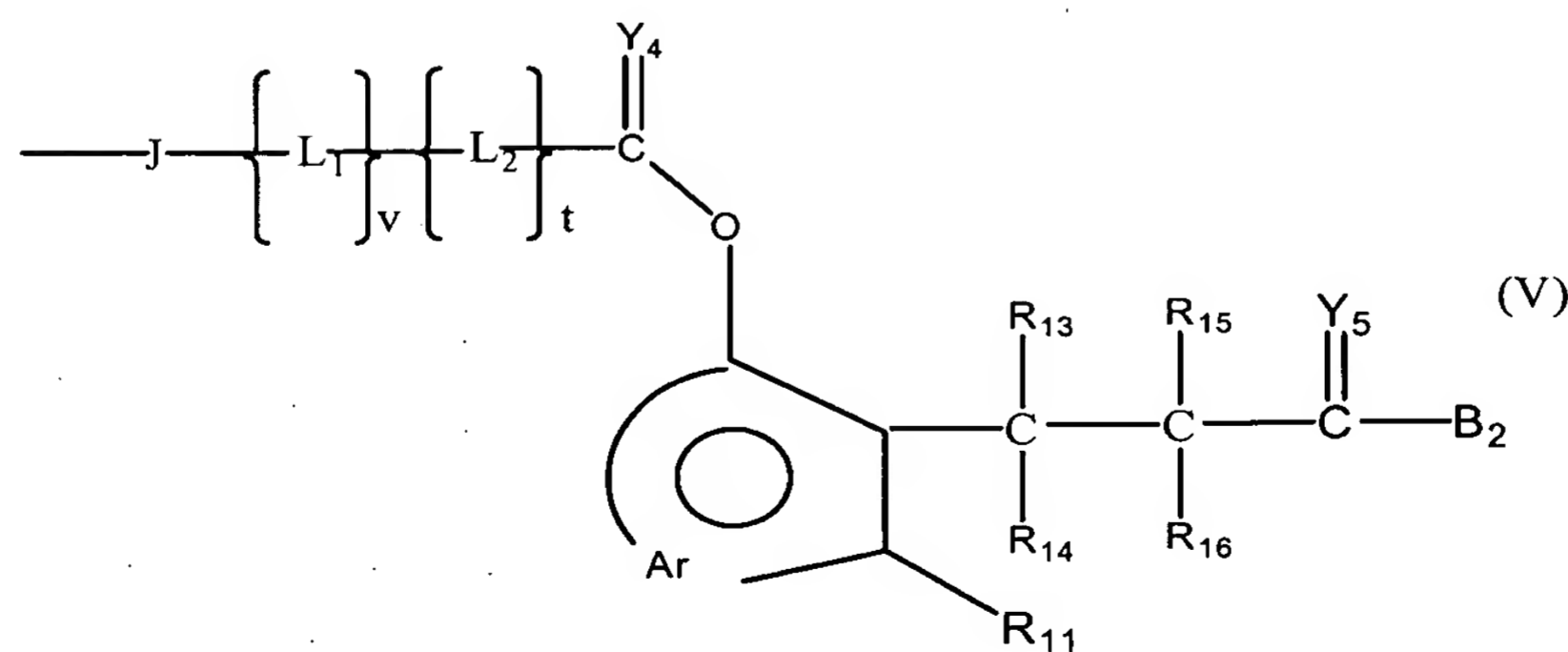


wherein

D''₁ and D''₂ are independently OH,



or



5. The compound of claim 3, Y_1 is O.
6. The compound of claim 1, wherein R_1 comprises a polyalkylene oxide residue.
7. The compound of claim 6, wherein R_1 comprises a polyethylene glycol residue.
8. The compound of claim 3, wherein R_1 comprises a polyethylene glycol residue.

9. The compound of claim 6, wherein R_1 is selected from the group consisting of

$-C(=Y_6)-(CH_2)_f-O-(CH_2CH_2O)_x-A$,
 $-C(=Y_6)-Y_7-(CH_2)_f-O-(CH_2CH_2O)_x-A$,
 $-C(=Y_6)-NR_{23}-(CH_2)_f-O-(CH_2CH_2O)_x-A$,
 $-(CR_{24}R_{25})_e-O-(CH_2)_f-O-(CH_2CH_2O)_x-A$,
 $-NR_{23}-(CH_2)_f-O-(CH_2CH_2O)_x-A$,
 $-C(=Y_6)-(CH_2)_f-O-(CH_2CH_2O)_x-(CH_2)_f-C(=Y_6)-$,
 $-C(=Y_6)-Y_7-(CH_2)_f-O-(CH_2CH_2O)_x-(CH_2)_f-Y_7-C(=Y_6)-$,
 $-C(=Y_6)-NR_{23}-(CH_2)_f-O-(CH_2CH_2O)_x-(CH_2)_f-NR_{23}-C(=Y_6)-$,
 $-(CR_{24}R_{25})_e-O-(CH_2)_f-O-(CH_2CH_2O)_x-(CH_2)_f-O-(CR_{24}R_{25})_e-$, and
 $-NR_{23}-(CH_2)_f-O-(CH_2CH_2O)_x-(CH_2)_f-NR_{23}-$

wherein: Y_6 and Y_7 are independently O, S or NR_{23} ;

x is the degree of polymerization;

R_{23} , R_{24} and R_{25} are independently selected from among H, C_{1-6} alkyls,
 C_{3-12} branched alkyls, C_{3-8} cycloalkyls, C_{1-6} substituted alkyls, C_{3-8} substituted cycloalkyls,
 aryls, substituted aryls, aralkyls, C_{1-6} heteroalkyls, substituted C_{1-6} heteroalkyls,
 C_{1-6} alkoxy, phenoxy and C_{1-6} heteroalkoxy;

e and f are independently zero, one or two; and

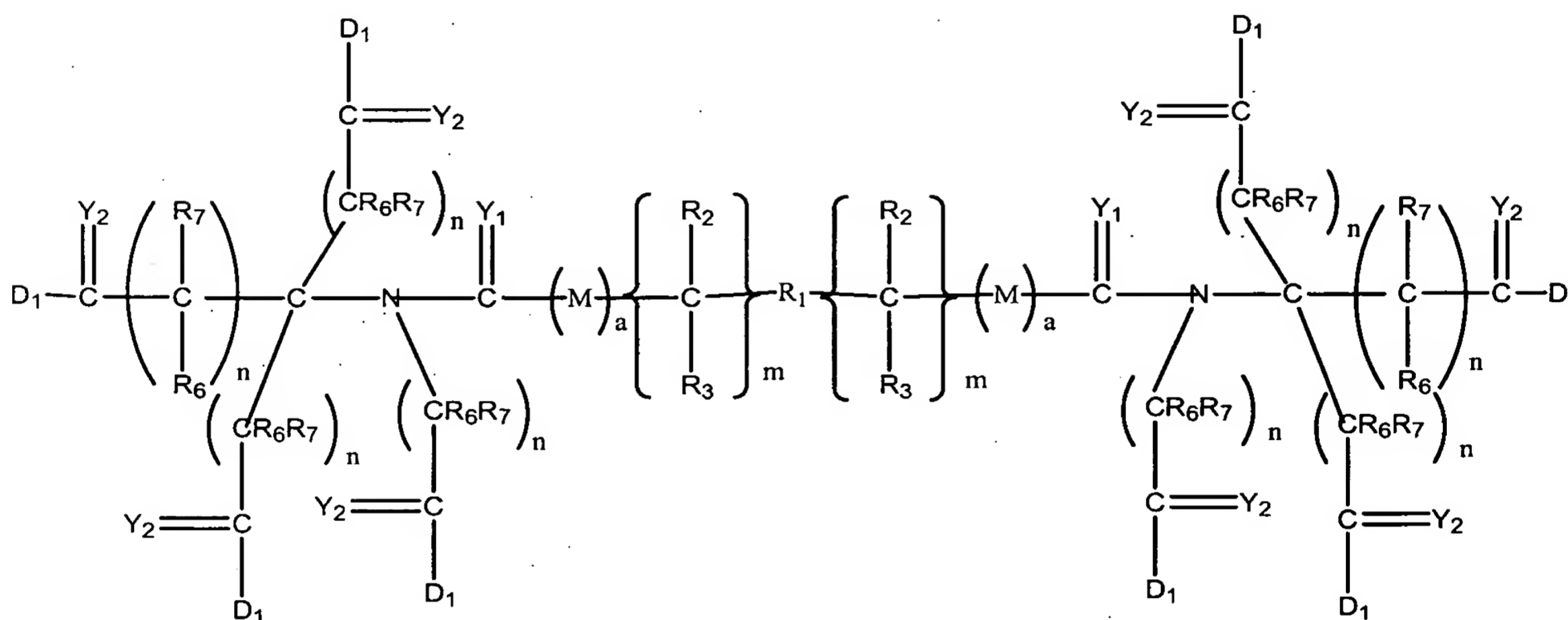
A is a capping group.

10. The compound of claim 9, wherein R_1 comprises $-O-(CH_2CH_2O)_x$ and x is a positive integer so that the weight average molecular weight is at least about 20,000.

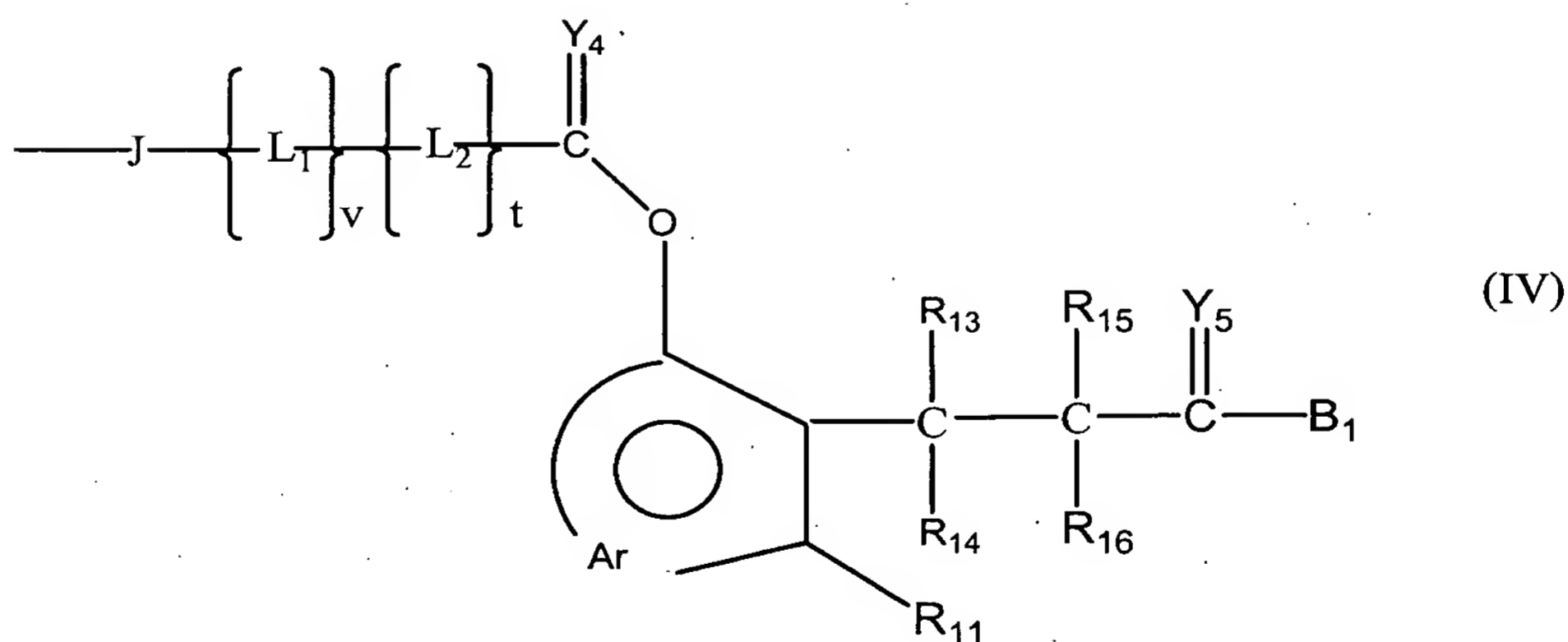
11. The compound of claim 3, wherein R₁ has a weight average molecular weight of from about 20,000 to about 100,000.

12. The compound of claim 3, wherein R₁ has a weight average molecular weight of from about 25,000 to about 60,000.

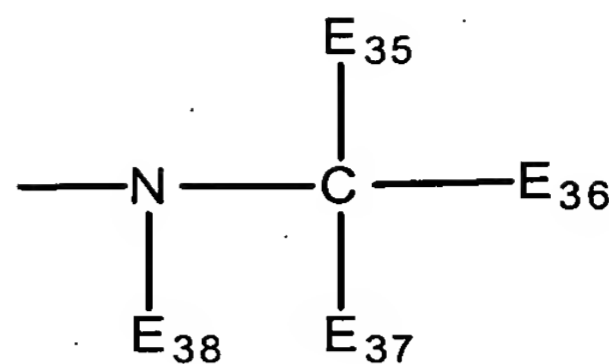
13. A compound of claim 3, comprising the formula



14. The compound of claim 13, wherein D₁ is



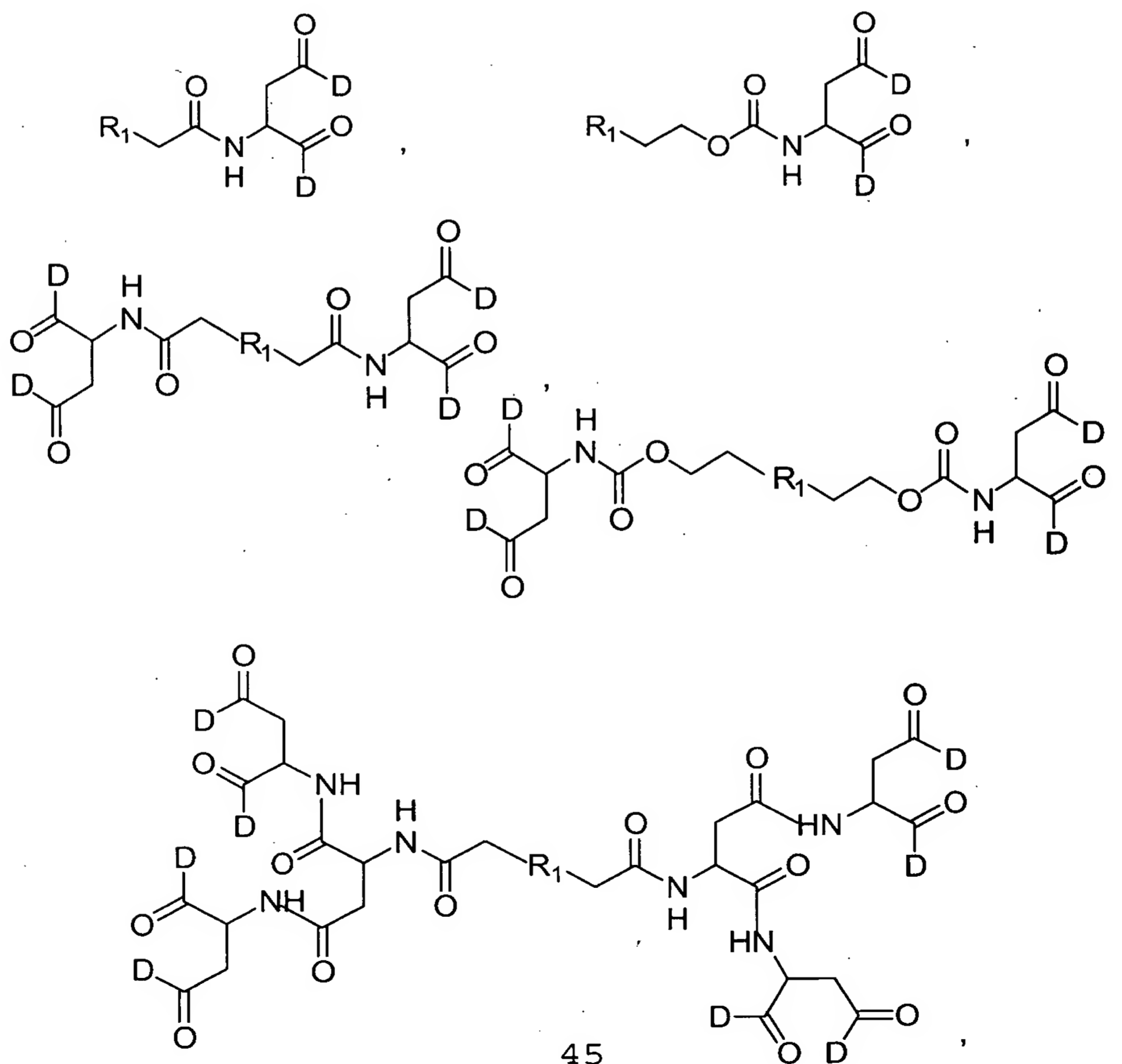
15. The compound of claim 13, wherein D₁ is

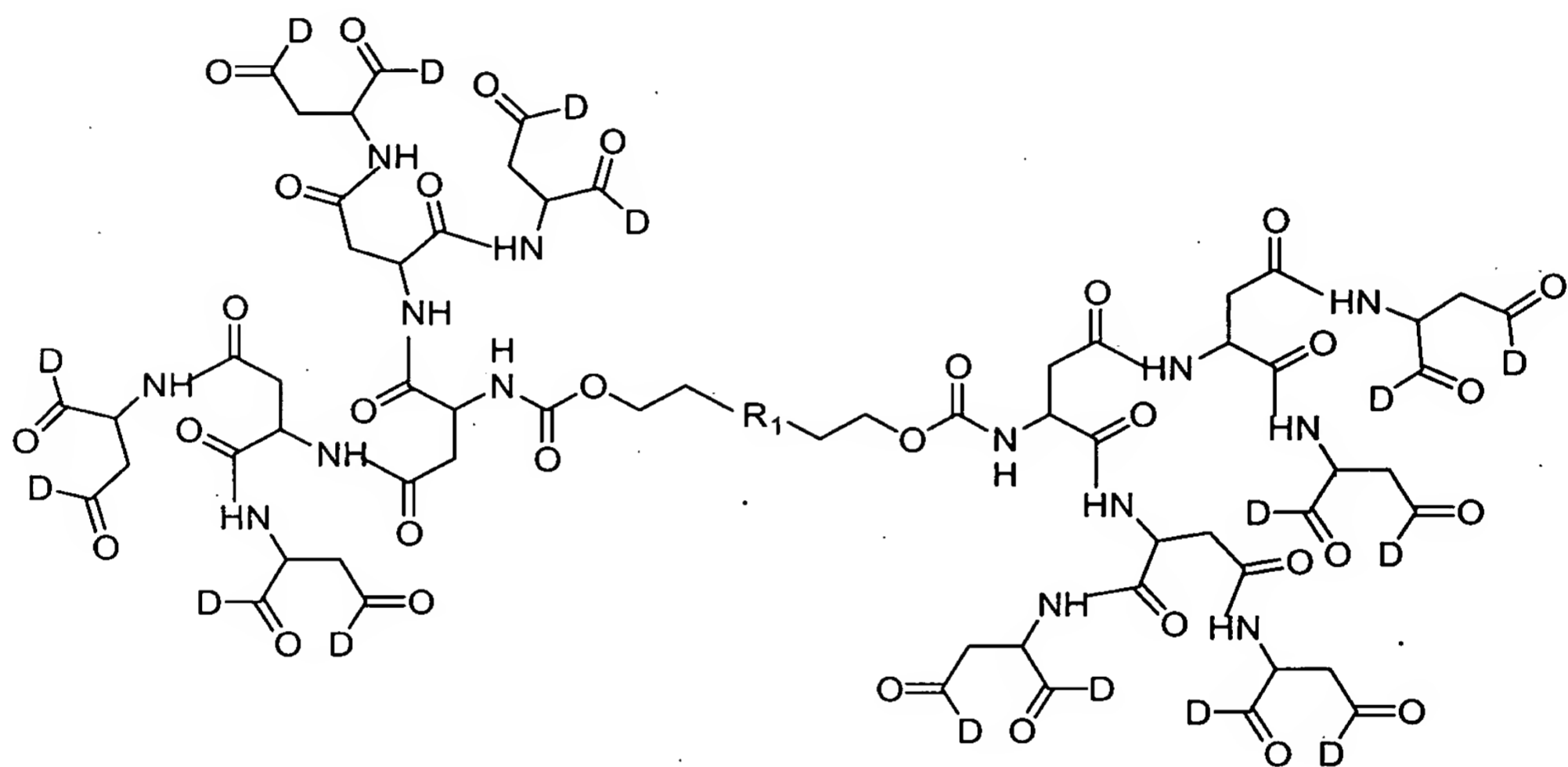
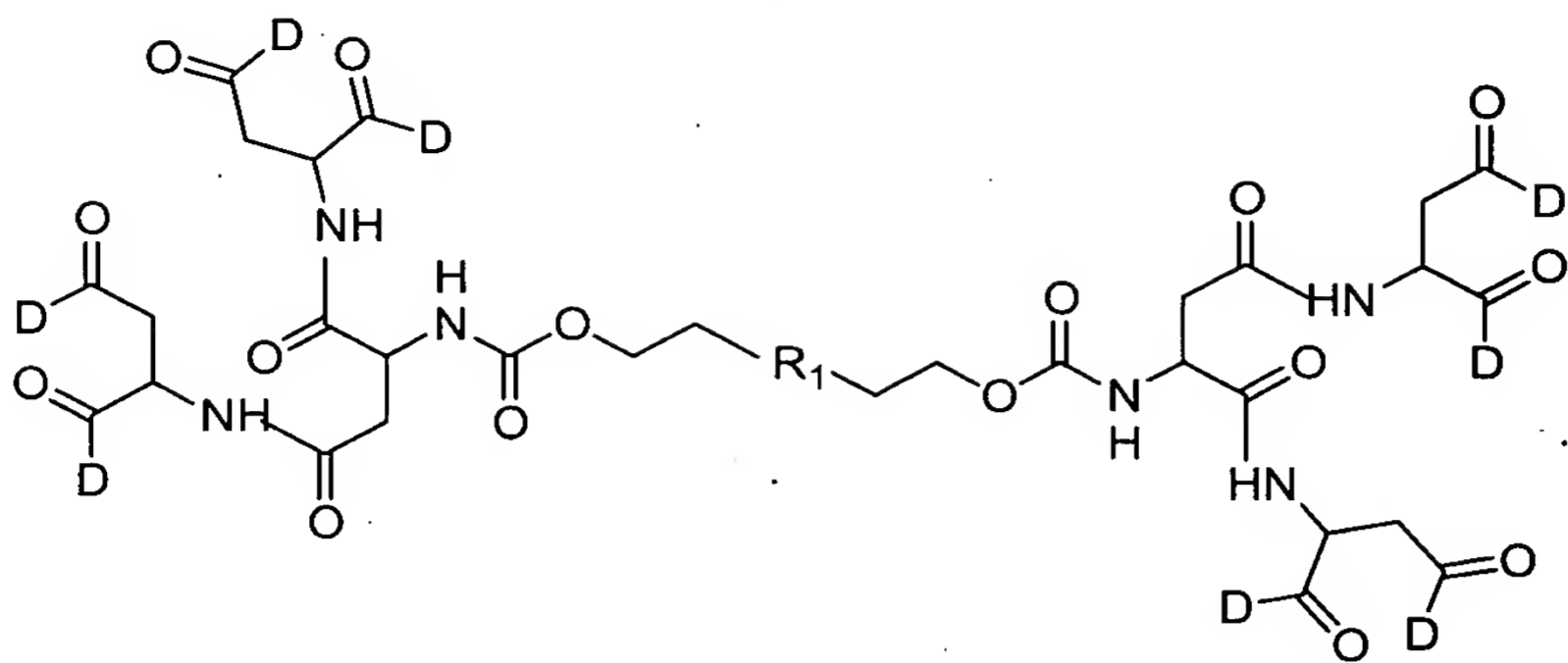


16. The compound of claim 1, wherein L₁ is (CH₂CH₂O)₂.

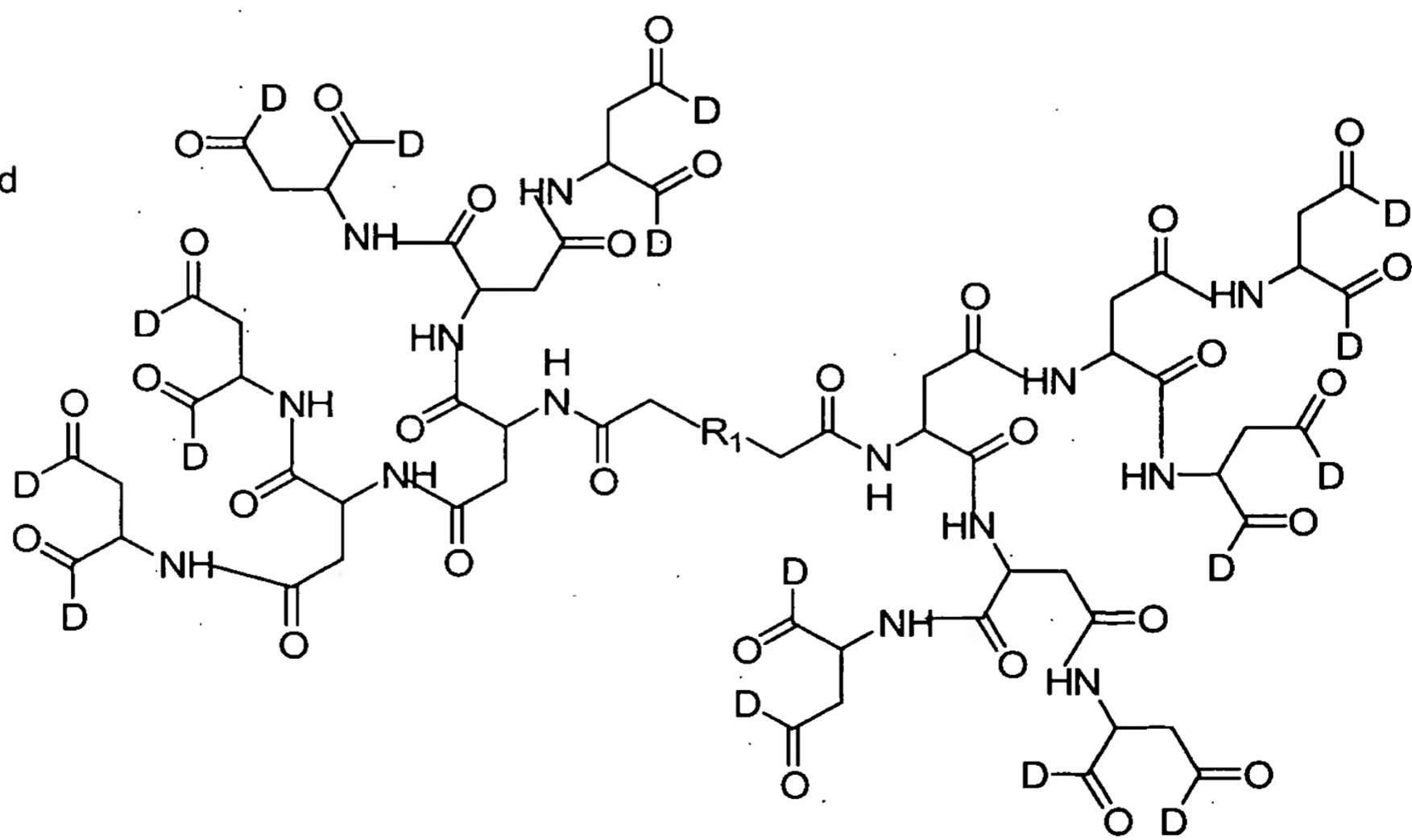
17. The compound of claim 1, wherein L₂ is selected from the group consisting of -CH₂-, -CH(CH₃)-, -CH₂C(O)NHCH(CH₃)-, -(CH₂)₂-, -CH₂C(O)NHCH₂-, -(CH₂)₂-NH-, -(CH₂)₂-NH-C(O)(CH₂)₂NH- and -CH₂C(O)NHCH(CH₂CH(CH₃)₂)-

18. A compound of claim 1, selected from the group consisting of:

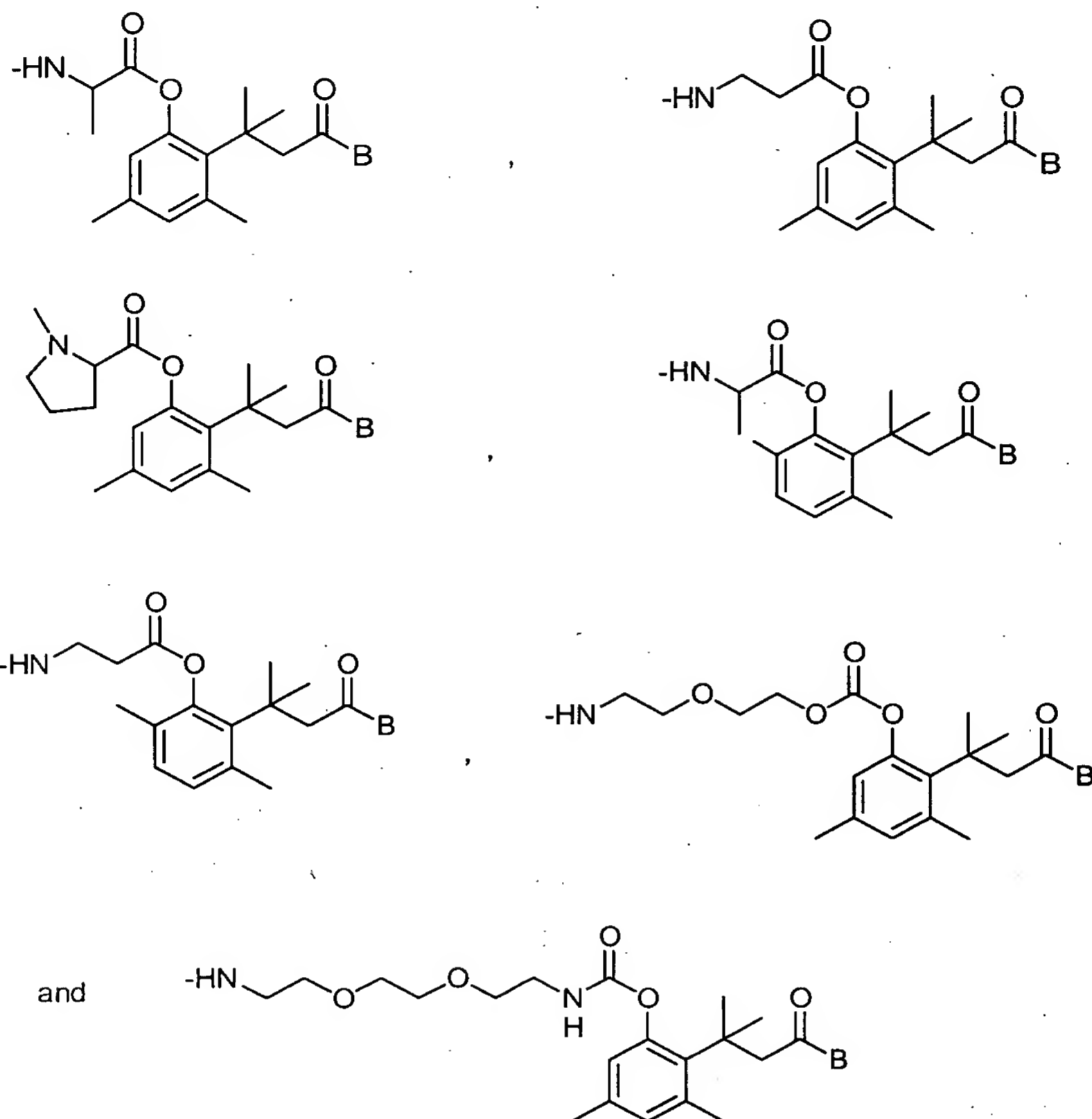




and



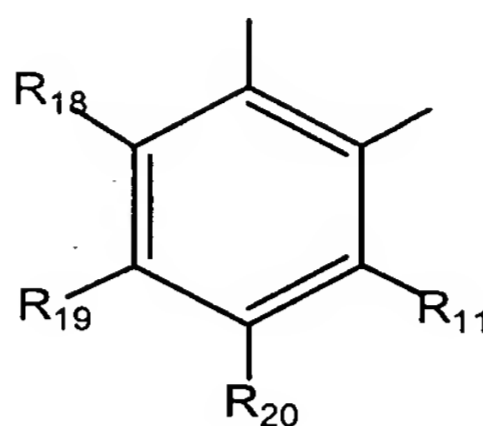
wherein R_1 is a PEG residue and D is selected from the group consisting of:



where B is a residue of an amine or a hydroxyl-containing drug.

19. A compound of claim 18, wherein B is a residue of a member of the group consisting of: daunorubicin, doxorubicin; *p*-aminoaniline mustard, melphalan, Ara-C (cytosine arabinoside), leucine-Ara-C, and gemcitabine
20. A method of treatment, comprising administering to a mammal in need of such treatment an effective amount of a compound of claim 1, wherein D_1 is a residue of a biologically active moiety.
21. A method of treatment, comprising administering to a mammal in need of such treatment an effective amount of a compound of claim 18.

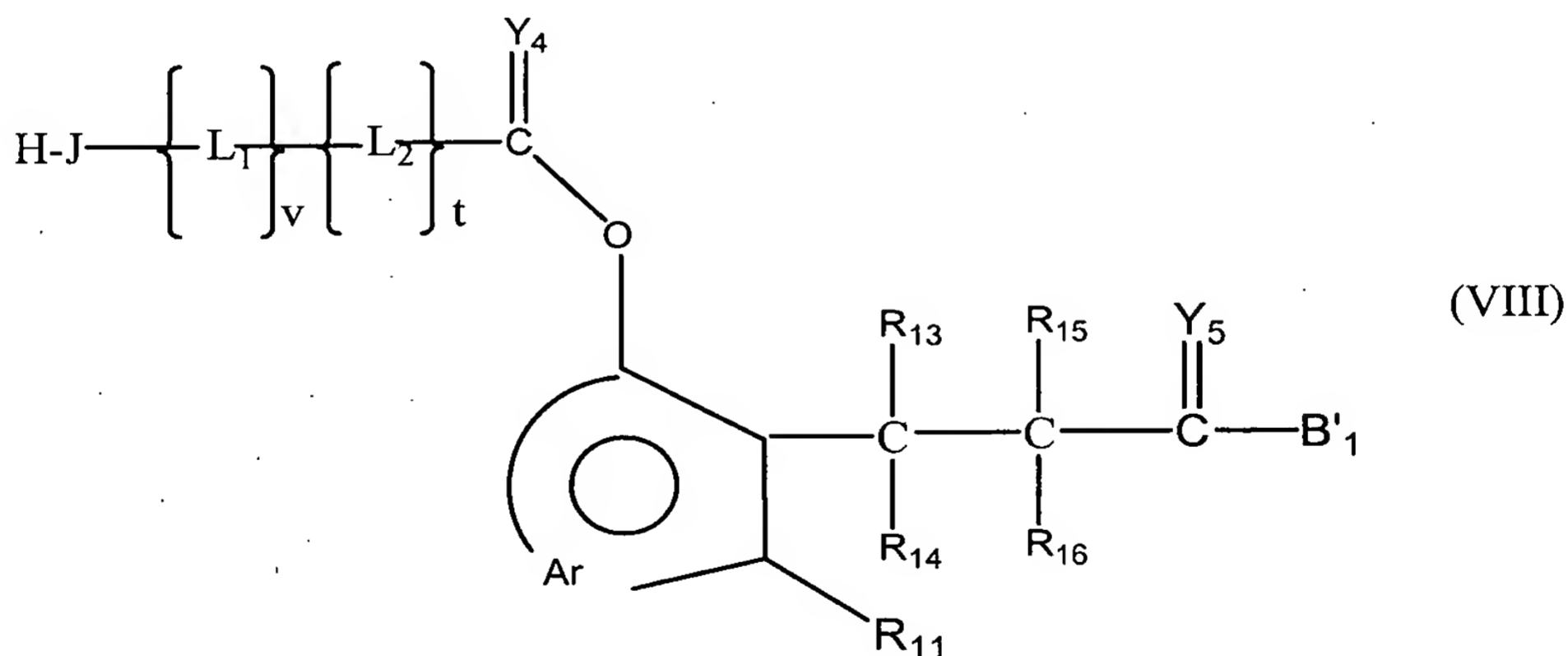
22. The compound of claim 1, wherein Ar comprises the formula:



wherein R_{11} and R_{18-20} are individually selected from the group consisting of hydrogen, C_{1-6} alkyls, C_{3-12} branched alkyls, C_{3-8} cycloalkyls, C_{1-6} substituted alkyls, C_{3-8} substituted cycloalkyls, aryls, substituted aryls, aralkyls, C_{1-6} heteroalkyls, substituted C_{1-6} heteroalkyls, C_{1-6} alkoxy, phenoxy and C_{1-6} heteroalkoxy.

23. The compound of claim 22, wherein R_{11} and R_{18-20} are each H or CH_3 .

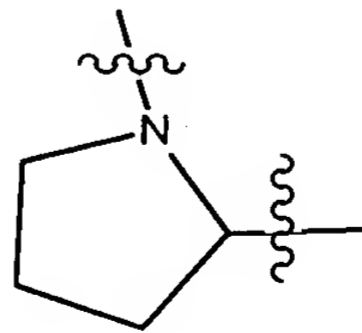
24. A method of preparing a polymer conjugate, comprising:
reacting a compound of the formula (VIII):



wherein

(v) and (t) are independently 0 or a positive integer up to about 6;

J is NR_{12} or



L_1 and L_2 are independently selected bifunctional linkers;

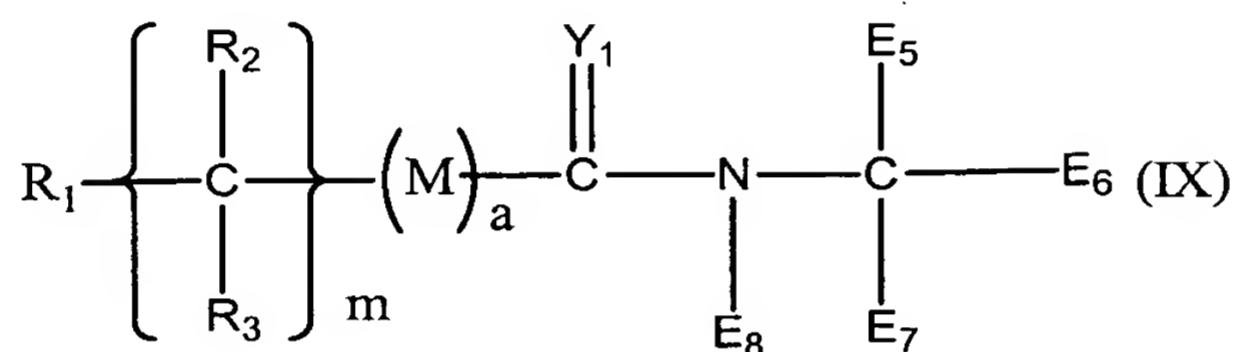
Y_{4-5} are independently selected from the group consisting of O, S and NR_{17} ;

R_{11-17} are independently selected from the group consisting of hydrogen, C_{1-6} alkyls, C_{3-12} branched alkyls, C_{3-8} cycloalkyls, C_{1-6} substituted alkyls, C_{3-8} substituted cycloalkyls, aryls, substituted aryls, aralkyls, C_{1-6} heteroalkyls, substituted C_{1-6} heteroalkyls, C_{1-6} alkoxy, phenoxy and C_{1-6} heteroalkoxy;

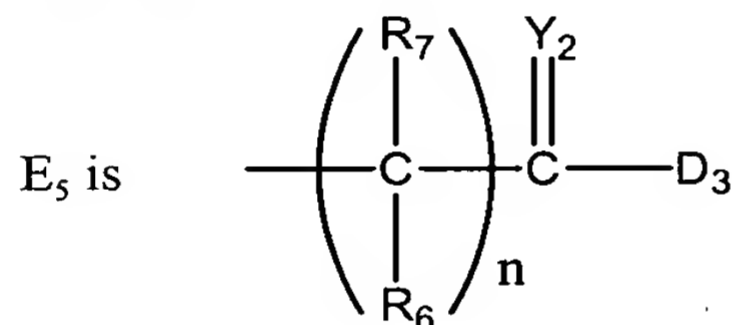
Ar is a moiety which when included in Formula (I) forms a multi-substituted aromatic hydrocarbon or a multi-substituted heterocyclic group; and

B'_1 is a residue of a hydroxyl- or an amine-containing moiety;

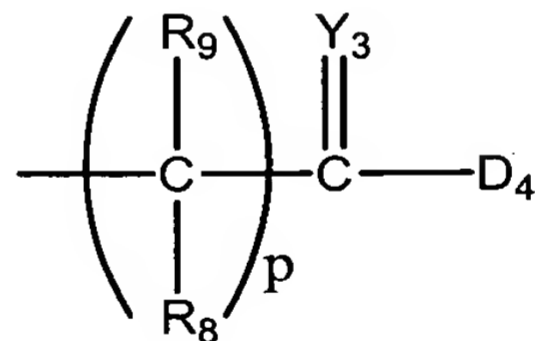
with a compound of the formula (IX):



wherein



E_{6-8} are independently H, E_5 or



D_3 and D_4 are independently OH, a leaving group which is capable of reacting with an unprotected amine or hydroxyl or a terminal branching group;

R_1 is a polymeric residue;

Y_1 is O, S or NR_4 ;

M is O, S or NR_5 ;

(a) is zero or one;

(m) is 0 or a positive integer;

(n) and (p) are independently 0 or a positive integer;

Y_{2-3} are independently O, S or NR_{10} ; and

R_{2-10} are independently selected from the group consisting of hydrogen, C_{1-6} alkyls, C_{3-12} branched alkyls, C_{3-8} cycloalkyls, C_{1-6} substituted alkyls, C_{3-8} substituted cycloalkyls, aryls, substituted aryls, aralkyls, C_{1-6} heteroalkyls, substituted C_{1-6} heteroalkyls, C_{1-6} alkoxy, phenoxy and C_{1-6} heteroalkoxy;

under conditions sufficient to cause a polymeric conjugate to be formed.

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